ETLA
ELINKEINOELÄMÄN TUTKIMUSLAITOS
THE RESEARCH INSTITUTE OF THE FINNISH ECONOMY
Lönnrotinkatu 4 B 00120 Helsinki Finland Tel. 358-9-609 900
Telefax 358-9-601 753 World Wide Web: http://www.etla.fi/

Keskusteluaiheita – Discussion papers

No. 1131

Derek C. Jones* – Panu Kalmi** – Takao Kato***

– Mikko Mäkinen****

THE INCIDENCE AND DETERMINANTS OF EMPLOYEE INVOLVEMENT – EVIDENCE FROM THE FINNISH MANUFACTURING SECTOR

* Dept. of Economics, Hamilton College, Clinton, NY 13323, djones@hamilton.edu

** (corresponding author) Dept. of Economics, Helsinki School of Economics, PO Box 1210, 00101 Helsinki, Finland and The Academy of Finland, panu.kalmi@hse.fi

*** Dept. of Economics, Colgate University, Clinton, NY 13346, tkato@mail.colgate.edu

**** Dept. of Economics, Helsinki School of Economics, mikko.makinen@hse.fi and The Research Institute of the Finnish Economy (ETLA)

We are grateful to the Finnish Work Environment Fund (Työsuojelurahasto) and the Finnish Funding Agency for Technology and Innovation (TEKES) for financial support. Kalmi recognizes financial support from the Academy of Finland. All support from the Research Institute of the Finnish Economy (ETLA) is gratefully acknowledged. The usual disclaimer applies.

ISSN 0781-6847 28.03.2008

JONES, Derec C. – **KALMI**, Panu – **KATO**, Takao – **MÄKINEN**, Mikko, **THE INCIDENCE AND DETERMINANTS OF EMPLOYEE INVOLVEMENT – EVIDENCE FROM THE FINNISH MANUFACTURING SECTOR.** Helsinki: ETLA, Elinkeinoelämän Tutkimuslaitos, The Research Institute of the Finnish Economy, 2008, 24 p. (Keskusteluaiheita, Discussion Papers, ISSN 0781-6847; No. 1131).

ABSTRACT: In this paper, we present preliminary empirical findings on the incidence of employee involvement practices in the Finnish manufacturing sector. The novel survey on EI practices is based on a representative random sample from the population of the Finnish manufacturing firms who had 50 or more employees in 2005. Our main findings are that employee involvement practices are widespread in Finnish firms, although there is variation in the use of individual practices. Job rotation and satisfaction surveys are the most common practices and board representation the least common. Studying the determinants of these practices, we find evidence that they are more commonly used in larger firms and in firms that use heavily other advanced management practices.

JEL Codes: M54; J41; J53; C21

Keywords: new workplace practices; HRM; employee participation

1 Introduction

This paper studies the incidence and determinants of employee involvement (EI) in Finnish manufacturing firms. While there is a large literature from different parts of the world, including the US, the UK, and Japan (e.g. Blasi and Kruse, 2006; Bryson, Gomez and Kretschmer 2005; Kato 2006) indicating that the use of employee involvement is widespread and increasing, so far there has not been large-scale survey studies on these issues in Finland. The existing research on workplace innovations in Finland has either used a limited set of innovations and data on individuals instead of organizations (Kalmi and Kauhanen 2008; Kauhanen 2007) or used case study approach (Jones, Kalmi and Kauhanen 2006).

We use a new and unique data set of Finnish manufacturing firms. This is a representative random sample from the population of the Finnish manufacturing firms who had 50 or more employees in 2005. We have information on EI practices of 398 firms, which is 38% of the firms in the population and almost 50% of the firms the survey was sent. Compared to other similar surveys, the Finnish survey includes a very broad number of questions both on various management practices and contextual issues that can be expected to influence EI (such as the use of information technologies, degree of competition etc.). The survey data has been matched to financial data on companies.

We believe that there are several good reasons to study employee involvement. For one thing, employee involvement practices have often been shown to be linked with improved firm performance (Ichniowski and Shaw 2003 survey the literature). One reason for this may be that when employees can participate in workplace decision-making through involvement, they are able to use the private information they accumulate in their jobs

more efficiently. A second reason may be that EI improves employee morale and intrinsic satisfaction, that leads employees to exert more effort on behalf of the organization (e.g. Appelbaum et al. 2000).

So far the most of the studies on EI have focused on the impact of various practices. In this paper we address the question what type of firms adopt these practices. We draw especially from the recent contributions by Lynch (2007) and Chi, Freeman and Kleiner (2007).

The structure of the paper is as follows. Section 2 describes our new survey data set. In Section 3, we discuss our measures of EI, the determinants of EI, and how they link to previous literature. Section 4 presents the descriptive statistics of employee involvement. Section 5 shows empirical findings. Section 6 concludes.

2 Description of the survey

The analysis in this paper is based on the new data set the authors have collected in December 2005 – January 2006.[1] The population of firms targeted was all Finnish manufacturing firms having over 50 employees in 2005. The size of this target population is 1,054 firms. 832 of these firms were randomly selected and contacted by a phone interviewer. We got usable responses from 398 respondents. This represents 38% of the total population and 48 % of targeted companies. The characteristics of the sample companies turned out to be very similar to the population in terms of size and industry distributions (see Jones et al. 2008 for details).

[1] See Jones et al. (2008) for a more extensive discussion of the data.

The survey covered a large number of questions on various areas. The main areas were firm basic information (including information on competition and strategy), employee financial participation and performance-related pay (PRP), employee involvement, various management strategies (both HRM and other), training, the use of ICT, and firm ownership and reorganization. The respondents to the survey were managers in charge of the human resource management practices. The questions were addressed to the firm at large, rather than individual establishments. One reason for this was that the financial data to be matched with the survey were firm-level. We match with this survey data financial data from 2005.

3 Variables of interest

The purpose of this section is to present our dependent and independent variables and discuss how they relate to the previous literature.

Employee involvement. In this paper we closely follow the definition of employee involvement by Chi, Freeman and Kleiner (2007). Their EI variable consists of the following items: Employee representation at the board of directors, joint consultation committee between employee and employer representatives, quality circles, self-managed teams, job rotation, suggestion schemes, quality of work life - programs, and total quality management (TQM). The presence of these items is measured by dummy variables taking values 0 or 1, and these values are summed to form an index taking values from 0 to 8. Our variable is very similar, with one exception: We do not have information on the quality of work life- programs implemented in the firm. Instead, we include the practice of organizing employee satisfaction surveys regularly in our analysis.

The Chi et al. definition of employee involvement, which includes only variables related to employee participation in decision-making (or employee "voice") is not the only one used. For instance, Lynch (2007) uses a much broader definition that includes not only employee voice but also performance-related pay (which she calls "shared capitalism") and training variables. We use these variables as explanatory variables rather than part of employee involvement index. On the other hand, many researchers make a distinction between "representative" or "indirect" and "shopfloor" or "direct" modes of participation, board representation and consultation committees being examples of the former and the rest examples of the latter (e.g. Kato and Morishima 2002; Poutsma, Kalmi and Pendleton 2006), whereas the Chi et al. definition blurs this distinction. In future research, we will check further the robustness of our results to these various definitions.

Next, we discuss our explanatory variables.

Firm size. The conventional wisdom of the the relationship with firm size, measured by employee headcount, and employee involvement is that this is positive, possibly because of fixed costs involved in setting up such schemes. However, some studies have also find a negative relationship between size and employee involvement (Osterman 1994; Chi et al. 2007). This disparity can be related to sample composition. Samples including small firms may more plausibly find a positive relationship, whereas samples consisting mostly of large firms (e.g. studies focusing on publicly listed firms) may display a negative relationship.

Unionization. Most of the literature focusing on the relationship between unionization and employee involvement is from the US, where the industrial relations structure is completely different from Finland. Studies that find a negative relationship between

unionization and employee involvement include Chi et al. (2007) and Lynch (2007). However, Osterman (1994) finds no significant relationship. One interpretation for the negative findings is that in the US, employee involvement may be regarded as a mechanism of union deterrence. This would not make sense in the Finnish context where the right to representation and collective bargaining are supported by the legislation. In Finland unions are not only active in wage bargaining but also in codetermining on work conditions. In fact, employers have some legal obligation to consult employee representatives when introducing new workplace practices (see Kalmi and Kauhanen 2008). In the Finnish industrial relations context, it may actually be more plausible to expect a positive relationship between unionization and employee involvement.[2] Since all our respondents are unionized at least to some degree, we use union density (proportion of employees belonging to unions) as our measure of unionization.

Financial participation and performance-related pay. Financial participation is often seen as complementary with other advanced HRM practices (e.g. Black and Lynch 2004), however the evidence so far is somewhat contradictory. Chi et al. (2007) find that presence of gain sharing or group bonus is associated with higher presence of employee involvement, but other firm level methods of incentive pay was negatively associated with employee involvement. Similarly, Poutsma et al. (2006) find both positive and negative associations between employee involvement and financial participation with European data. Jones and Pliskin (1997) do not find a relationship between industrial relations system of the company and financial participation. In our data, we use several measures of performance-related pay (PRP) and financial participation. We focus on the incidence of these practices among the line employees. We divide PRP to three groups: company- or

[2] Kato (2003) presents both quantitative and qualitative evidence for the positive and often crucial role unions play in promoting employee participation in Japan. This is another example of the fact that the relationship between unions and employee involvement crucially depends on the industrial relations system.

establishment level; department- or team-level; and individual level. In addition, we construct a measure of financial participation that gets a value 1 if the company has either personnel funds[3], broad-based stock options or broad-based stock ownership.

Training. As discussed by Lynch (2007), presence of training programs is not a very good measure of training, because it does not address training intensity and there is little variation in the variable, because almost all companies offer some amount of workplace training to their employees. This applies especially to our data where 98% of respondents organize workplace training. Therefore we use the percentage of workforce trained in 2005 as our measure for training. Chi et al. (2007) find evidence that training is positively associated with employee involvement.

IT Technology. The positive relationship between IT technology and employee involvement has been stressed e.g. by Lynch (2007), who finds mostly positive relationship. The use of ICT was also positively related to most workplace innovations in the individual level data on Finnish employees analyzed by Kauhanen (2007). A positive relationship between IT technology use and employee involvement is also in line with the complementarity thesis of Bresnahan, Brynjolffson and Hitt (2002). Our measure of the use of the IT technology is the percentage of employees who use computers almost daily in their work tasks. We also include the presence of the Enterprise Resource Planning (ERP) system in our analysis. We are not aware of previous literature investigating the impact of ERP on employee involvement practices.

Other advanced HRM practices and management tools. This is a group of practices that could be termed "advanced" HRM practices and management tools (not all of them are

[3] Personnel funds are a Finnish deferred profit-sharing system that includes all workers. For description, see Sweins, Kalmi and Hulkko-Nyman (2008).

HRM practices). Common among them is very systematic approach to performance measurement and communication about what is measured. Some of these practices are HRM oriented, such as development talks (a form of performance appraisal), formal recruitment criteria, and the share of HRM personnel to total personnel (that can be viewed as a measure of attention paid to HRM issues). Other advanced management practices that we include are benchmarking (a practice where the performance of the firm is compared to its competitors), balanced scorecard (a monitoring and feedback system of selected performance indicators), and ISO – certification (a certification system of product and process quality). These variables have received rather limited attention in prior literature.

Competition and business strategies. The role of competition and business strategies has been addressed in the work of Kato and Owan (2007). They propose that employee involvement (that they measure mostly by teamwork) is more common when competition is high. The level of employee involvement may also depend on the business strategy the firm is using. We have three variables related to these issues. The variable “Competition very high” indicates that the respondents indicate the competition in their main product to be very high, “Foreign competition” indicates that the respondent faces competition from foreign producers, and “Low price strategy” indicates that the main competitive strategy of the respondent is low price.

Firm age, profitability and capital intesity. There are several variables that have been hypothesized to influence the adoption of employee involvement practices. There is a predicted negative relationship with firm or establishment age, the motivation being that younger firms or establishments would find it easier to establish new work practices (e.g. Lynch 2007). Profitability is also thought to be related to the adoption of employee involvement, even though it is not clear what way the relationship should go (see Lynch

2007, p. 12-13 for a discussion; in her empirical work, she finds a positive relationship). Capital intensity may also influence employee involvement. One one hand, more sophisticated machinery (that can perhaps be proxied by higher capital intensity) may require more discretion to employees and the expected relationship with employee involvement is positive (supported by Lynch's analysis). One the other hand, employee involvement programs may be less effective in firms with machine-based production and therefore we may observe a negative relationship between our measures of capital intensity and employee involvement.[4]

Ownership and reorganization. Ownership configurations may also influence employee involvement practices.[5] If employee involvement is addressed to solve issues related to the difficulties of monitoring employee performance and encouraging high employee effort by appealing to intrinsic motivation, then far-away and / or arms-length type of owners may prefer to introduce employee involvement schemes. We use dummy variables to indicate whether the largest owner is of foreign origin, whether there is a majority owner, and whether there have been significant ownership changes during the past five years prior to the survey.

4 Descriptive statistics

In this section we present the descriptive statistics. Figure 1 presents the distribution of employee involvement schemes. The distribution is somewhat skewed to the right. The mode of the distribution is 5 employee involvement practices, and 79 % of firms have between 3 to 6 practices. There is only one firm in the sample, which does not have any employee involvement practices, while 4 have all of them.

[4] Jones and Kato (1993) report supporting evidence.
[5] Jones, Kalmi and Mäkinen (2006) discuss these issues in the context of stock option adoption in Finland.

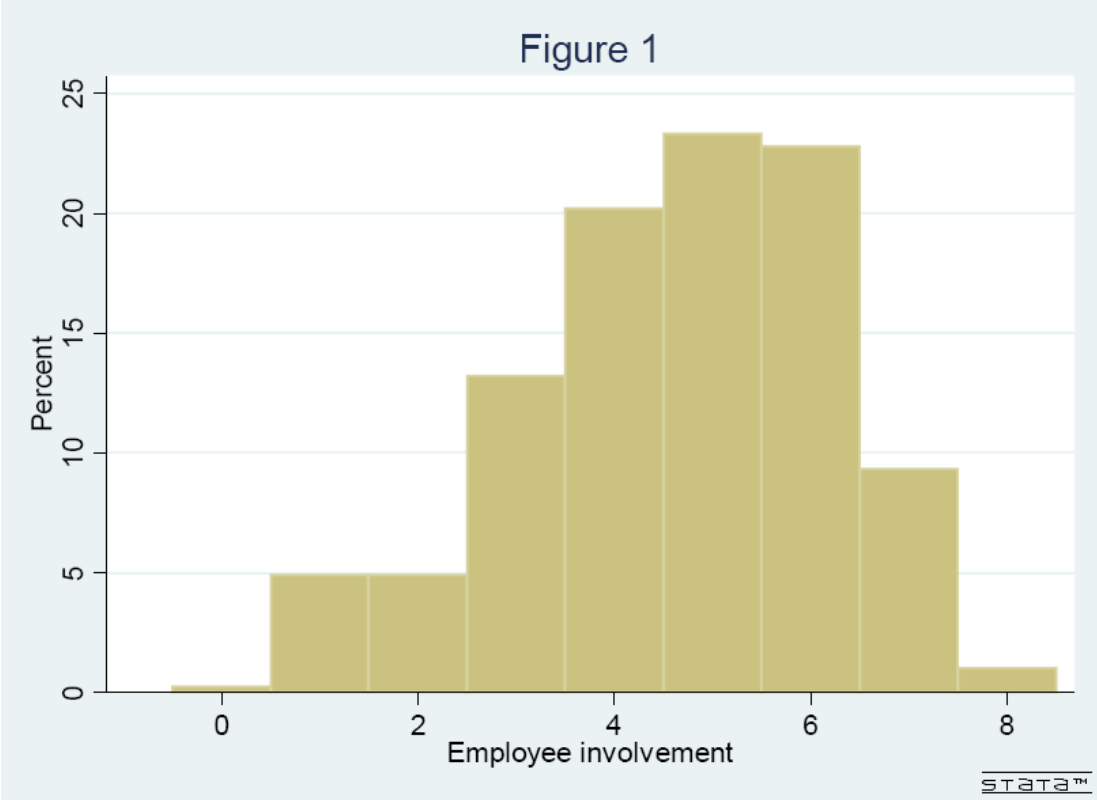

Table 1 presents the distribution of the practices and shows that they are quite unevenly distributed. The most common practices are job rotation (83%), satisfaction surveys (82%), joint consultation committees (78%), and suggestion schemes (76%). Quality circles (55%), TQM (41%) and self-managed teams (35%) are clearly behind these practices, but ahead of employee board representation (12%), that is clearly the least used of the practices.

Table 1 also presents a correlation matrix for the variables. 15 out of 28 reported correlations are significant at least at 5 % level. The pattern of correlations is also interesting in the sense that there are two variables that have very few significant correlations with other variables and these are the two least common practices: board representation (that has no significant correlation with other variables) and self-managed teams (that is correlated only with quality circles). Other variables are almost always significantly correlated between each other (with one exception). It is also interesting to see that there are no negative correlations.

Table 1. Summary statistics and correlation matrix of employee involvement variables

	Mean (std)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Board representation	0.12 (0.32)							
(2) Joint consultation committees	0.79 (0.41)	0.05						
(3) Quality circles	0.55 (0.50)	0.03	0.30**					
(4) Self-managed teams	0.37 (0.48)	-0.05	0.03	0.14**				
(5) Job rotation	0.83 (0.37)	0.06	0.12*	0.09	0.09			
(6) Suggestion schemes	0.76 (0.43)	0.00	0.12*	0.15**	0.02	0.13*		
(7) Satisfaction surveys	0.82 (0.38)	0.06	0.23**	0.15**	0.04	0.20**	0.21**	
(8) Total Quality Management	0.41 (0.49)	-0.00	0.22**	0.20**	0.01	0.12**	0.17**	0.19**

Significance levels: * 5%; ** 1%.

Our findings are consistent with the results of Chi, Freeman and Kleiner (2007), who find that job rotation is the most common form of employee involvement in their sample, followed by joint committees, suggest scheme and TQM, that was adopted by 48 % of companies. The least used practice was board membership that was used by 4% of companies. The rankings of practices in Chi et al. study are very similar to our study, but the adoption of practices is considerably higher in our data. It should be noted that the most recent data in the Chi et al. study is from 1995 and, based on the adoption pattern they observed during a ten year period, they predicted the number of employee involvement practices to increase over time.

The Chi et al. data are based on a small (51 observations) sample on a geographically restricted area (Minneapolis and surroundings). Perhaps a more reliable picture emerges from the National Employer Survey from 1997 (see Blasi and Kruse 2006; Lynch 2007). These data however includes a considerably more restricted number of questions and generally indicate a somewhat lower incidence figures than the Minnesota survey. Judging

on that basis, Finnish manufacturing firms have higher incidence of employee involvement than their US counterparts.[6]

Poutsma et al. (2006) used European data on the incidence of various participation practices from 2001. This included data for six European countries.[7] First, these data show that in Finland all types of direct participation (suggestion schemes, autonomous teams, employee satisfaction surveys, and quality circles) are clearly higher than in other European countries that were studied,[8] although the incidence of representative participation was not higher than in other countries. This survey indicated a higher share of board representation than our sample but lower share of joint committees. However, there are clear differences in sample frames, because the Poutsma et al. study included only publicly listed firms and both manufacturing and service firms.

Table 2 presents the descriptive statistics for independent variables. The sample mean of employment is 287 employees. The union density is fairly high, 84%, but this is in line with other research on unionization in Finland (e.g. Böckerman and Uusitalo, 2006). Performance pay is most often tied to the level of company or establishment. 49 % of the respondents have performance pay for production workers at this level. 25% have performance pay at department or team level, while individual level performance pay is clearly the least common: only 8% of respondents have performance pay at this level. Financial participation is used also by 8% of respondents.[9]

---

[6] Kato (2003) and Kato et al. (2005) report the incidence of employee involvement programs in Japan and Korea. The EI incidence in Finland appears to be almost as high as that in Japan and Korea, which are generally considered pioneers in the use of participatory employment practices.

[7] Full results are reported in the working paper version; see Kalmi et al. (2004).

[8] The other countries in the study were the UK, Netherlands, France, Germany, and Spain. Thus, the study did not include other Nordic countries, where the incidence of these practices is probably comparable to Finland.

[9] This is much lower incidence than the use of one specific form of financial participation, namely broad-based stock options, in the study of Jones, Kalmi and Mäkinen (2006). However, their sample included publicly traded firms only, while in this sample we have mostly privately owned companies. Stock options can be expected to work properly only when the underlying stock is publicly traded, hence the higher incidence of stock options in publicly listed firms.

Table 2. Summary statistics of independent variables

Number of employees	286.89 (580.48)
Number of employees (in logs)	4.98 (1.01)
Union density	83.70 (15.77)
Company-level performance pay	0.49 (0.50)
Team-level performance pay	0.25 (0.43)
Individual performance pay	0.08 (0.26)
Financial participation	0.08 (0.26)
Percentage trained	58.85 (34.74)
IT use	57.68 (29.64)
ERP	0.86 (0.35)
Benchmarking	0.54 (0.50)
Balanced scorecard	0.64 (0.48)
Formal recruitment criteria	0.57 (0.50)
ISO	0.76 (0.43)
Development talks	0.82 (0.38)
Percentage of HRM professionals	1.47 (2.60)
Competition very high	0.40 (0.49)
Foreign competition	0.30 (0.46)
Low price strategy	0.34 (0.47)
Profit margin, %	3.75 (10.38)
Capital intensity, in logs	11.76 (0.99)
Firm age 10-19 years	0.37 (0.48)
Firm age 20-29 years	0.23 (0.42)
Firm age 30- years	0.11 (0.31)
Foreign ownership	0.24 (0.43)
Majority ownership	0.76 (0.43)
Reorganization	0.36 (0.48)

Workforce training is extremely common and almost all companies have some amounts of training. We get some more variation by looking at the percentage of workforce trained, that has a mean of 59%. Incidentally, this is almost the same as the percentage of employees using computer almost daily in their work tasks (58%). The use of Enterprise Resource Planning software is very common, 86% of the respondents use it.

Many of the formalized management practices, both production – and HRM-related, are fairly common. 76 % have ISO system, 64% use balanced scorecard and 54 % benchmarking. Of HRM practices, 82% of respondents use development talks and 57% use formal recruitment criteria. The mean share of HRM professionals to the workforce is 1.5%.

The next questions relate to the extent of competition. We asked the respondents of their perception about the extent of competition. 90 % of the respondents claimed that competition was either high or very high. We use the responses of “very high” competition, stated by 40% of respondents. 30 % of the respondents stated that they were facing “a lot” of foreign competition in the Finnish market. 34% of the respondents said they were mainly competing by low price.

The mean profit margin (net profit relative to sales) is 3.75 % and the mean of the log of capital intensity (assets to the number of employees) is 11.76. 37% of the firms in the sample are 10-19 years old, whereas 33% are older than that.

Final set of questions relate to issues of ownership. In 24% of the firms there is a foreign owner that is the largest owner. In 76 % of the firms there is one owner that owns more than 50 % of shares. In 36 % of the firms there was a restructuring of ownership involving at least 15 % of shares during the past six years.

5 Empirical findings

In this section we present the results of regression analysis. Since we have a rich set of variables that is derived from the employee survey and there is bound to be a significant amount of multicollinearity between the variables, it may not be the best idea to include all the variables simultaneously. In this preliminary analysis, we use the following strategy: In the first stage of analysis, we include the variables in groups (financial participation, training and IT, management practices, competition and business strategies, age, capital intensity and profitability; ownership and reorganization. Then we look which of these variables are significantly related to employee involvement and enter them in one regression specification in the second stage. In further analysis, we will also consider other possibilities, such as forming summary statistics from different groups of variables.

Table 3. Determinants of Employee Involvement: OLS results

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# of employees (in logs)	0.507*** (0.078)	0.475*** (0.081)	0.423*** (0.079)	0.304*** (0.076)	0.496*** (0.078)	0.504*** (0.084)	0.503*** (0.080)	0.246*** (0.078)
Union density	0.00960* (0.0051)	0.00871* (0.0050)	0.00897* (0.0048)	0.00503 (0.0050)	0.00919* (0.0051)	0.00801 (0.0056)	0.00891* (0.0051)	0.00448 (0.0052)
Company-level PRP		0.292 (0.18)						
Department-level PRP		0.207 (0.19)						
Individual PRP		0.0539 (0.29)						
Financial participation		-0.167 (0.33)						
Percentage trained			0.00674*** (0.0024)					0.00571** (0.0023)
ERP			0.571** (0.24)					0.352 (0.24)
IT use			0.00434 (0.0031)					

Benchmarking				0.282* (0.16)				0.150 (0.17)
Balanced Scorecard				0.355** (0.16)				0.374** (0.17)
Formal Recruitment				0.377** (0.16)				0.227 (0.17)
ISO				0.643*** (0.20)				0.622*** (0.23)
Development Talks				1.119*** (0.23)				1.237*** (0.24)
% of HRM Professionals				0.0330 (0.029)				
Competition Very High					0.128 (0.18)			
Foreign competition					0.208 (0.18)			
Low price Strategy					-0.0671 (0.17)			
Capital Intensity						0.206** (0.10)		0.0770 (0.081)
Profit Margin						-0.00104 (0.0079)		
Age 10-19y						-0.0159 (0.20)		
Age 20-29y						-0.0833 (0.23)		
Age 30y-						-0.0610 (0.44)		
Foreign Owner							0.0694 (0.22)	
Majority Owner							-0.0431 (0.19)	
Reorganization							0.160 (0.18)	
Observations	349	348	337	338	349	306	348	295
R-squared	0.17	0.18	0.22	0.36	0.18	0.21	0.17	0.38

Notes: 1) All specifications include industry controls.
2) Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

We will report the OLS regression with robust standard errors throughout. We have also tried alternatives such as Poisson regression. The results are robust regardless of estimation strategy. One benefit of the OLS is that the marginal effects can readily be inferred from model coefficients.

We include the number of employees, union density and industry dummies in all regressions. In specification 1 of Table 3, we present the base line regression containing only these variables (industry dummies are suppressed). Number of employees is highly significant in this specifications, as it is in all subsequent specifications as well. The coefficient of the variable indicates that a standard deviation increase in the log of employment, that corresponds to 170% increase of employment, would increase number of employee involvement practices by 0.5 units. Union density is positively related to employee involvement, but the estimated impact is not very large. A standard deviation increase (around 15%) in union density would lead to an increase of roughly 0.15 of the employee involvement variable. In most of the specifications that follow the coefficient sizes are similar, expect for specifications (4) and (8) (more below). The industry controls are significant as a group at 10% level of significance supporting their inclusion. However, the results reported below would not change markedly even if they were omitted.

In the second specification we add the variables of PRP and financial participation. None of these variables turns out to be significant at the conventional level, although company level PRP is very close to the 10 % level (p = 0.103). Specifically, financial participation variable gets negative sign, although it is far from significant. However, this casts doubts on the complementarity between financial participation and employee involvement.

In the third specification we include training and IT variables. A standard deviation increase in percentage trained (35%) would increase the number of employee involvement practices roughly by 0.2 units. Firms with ERP are associated with 0.6 more employee involvement practices than firms that haven't adopted ERP. IT use is not significantly related to employee involvement.

The fourth specification that includes the various management practices is interesting, because most of the variables included in this specification are significant and they have considerable explanatory power: the R-square jumps from 0.17 of the baseline specification to 0.36. The significant associations include both HRM and other management variables. The variable that is most strongly related to employee involvement is development talks. The firms that keep regular development talks have on average 1.2 more employee involvement practices than firms that do not keep development talks. Firms that have ISO quality systems have on average 0.6 more employee involvement practices compared to those that do not have. Firms with formal recruitment policies and with balanced scorecard have around 0.4 more employee involvement practices, and firms that do benchmark have around 0.3 more practices. The only one of the independent variables introduced in this set that is insignificant is the percentage of HR professionals, which is positive but insignificant.

The specifications (5) – (7) that include competition and business strategy variables, firm age, capital intensity and profitability, and ownership and reorganization have only one variable that is significant, namely capital intensity that has positive association with employee involvement. Therefore we turn our discussion to specification (8), where we have collected all variables that were significant in preceding analysis.

In this specification, the coefficient of employment is only one-half of its value in the base line specification, but it is still significant at 1% level. A standard deviation change in the value of employment is associated with 0.25 units more employee involvement. Similarly, the coefficient for union density is around one-half of the baseline value, but it is no longer significant.

Development talks and ISO quality systems that were significant at the 1% level in specification (4) are so also in specification (8), and the size of coefficients is roughly similar. Percentage trained and balanced scorecard remain significant at 5% level. However, some variables are no longer significant. These are formal recruitment policies, benchmarking, ERP, and capital intensity.

6 Conclusions

This study has for the first time addressed the issues of incidence and determinants of employee involvement in Finnish manufacturing companies. We use a unique new representative sample of Finnish manufacturing companies.

We find that Finnish companies use employee involvement relatively broadly. The mean of employee involvement index consisting of 8 items is 4.6. However, there is significant variation within practices. Some practices, especially satisfaction surveys, job rotation, joint consultation committees and suggestion schemes, are used very widely. Each of the top four practices is used by more than 75% of the respondents. However, other practices are used much less often. This applies especially to board representation, that is used only by 12% of the respondents.

It is difficult to compare rigorously our results with previous research, because most other studies have used more limited sets of workplace innovations variables. Our definition of employee involvement is very close to the one used by Chi et al. (2007). The rankings of Finnish of individual EI practices is very similar in both US and Finnish datasets, but the level of EI is higher in Finland. Since the research using national samples may indicate that the geographically limited sample of Chi et al. may overstate the amount of EI in the US, we may conclude that the incidence of EI is quite likely to be higher in Finland than in the US. Further, our results suggest that the level of EI in Finland is close to or on par with countries generally thought to be forerunners in EI; Japan, Korea and other Scandinavian countries.

In analyzing the determinants of incidence, we find that the size of the firm, measured by the number of employees, is a significant determinant. Larger firms have more employee involvement practices than smaller firms. While this is not unusual finding in the literature, also other results have been obtained. The relationship with union density is positive, but it is not always significant. The result with union density may be harder to observe because the variation in union density is rather small.

Perhaps the most interesting results are related to the relationship with other management practices. The number of employee involvement practices has a positive association with a number of other management practices, some of these being HRM practices (especially development talks, in some regression also formal recruitment) and other management practices (especially ISO quality systems and balanced scorecard, in some regressions also benchmarking). This suggests that companies that are relatively ambitious in developing management practices pay close attention also to employee involvement, possible viewing employee involvement as an additional set of ‘high performance’ management practices (see Baron and Kreps, 1999).

In addition, we find a positive relationship between training and employee involvement. This is not surprising given that training is sometimes viewed as an integral part of employee involvement. However, it is more surprising (although not altogether unusual) that none of the PRP or financial participation variables had a positive relationship with employee involvement. This suggests that the position of financial participation and variable pay in general as one type of employee involvement should be reconsidered.

Other variables that had a positive relationship with employee involvement include the use of enterprise resource planning system and capital intensity. However, neither of these results survived in the final specification. It is also interesting that many of the variables do not have significant relationship. For instance, we failed to find any impact from age, profitability, competition, strategy and ownership variables.

At this stage these results should be viewed necessarily as preliminary. In near future, we plan to undertake two significant extensions. First, for many variables we have actually a panel between 2002 – 2005, which makes also possible to analyze the determinants of adoption and termination of these practices. Second, we are able to match data on employee characteristics to our data, thus making possible to broaden the analysis to consider the impact of these variables.

References

Appelbaum, Eileen, Thomas Bailey, Peter Berg, and Arne L. Kalleberg. 2000. Manufacturing Advantage: Why High-Performance Work Systems Pay Off. Ithaca, NY: ILR Press.

Baron, James N. and David M. Kreps (1999): Strategic Human Resources: Frameworks for General Managers. New York: Wiley.

Black, Sandra and Lisa Lynch. 2004. ”What’s Driving the New Economy: The Benefits of Workplace Innovation.” Economic Journal 117 (February):F97-F116.

Blasi, Joseph R. and Douglas L. Kruse. 2006. “U.S. High Performance Work Practice’s at Century’s End.” Industrial Relations 45(4): 547-578.

Böckerman, Petri and Roope Uusitalo. 2006. ”Erosion of the Ghent System and Union Membership Decline: Evidence from Finland.” British Journal of Industrial Relations 44 (2):283-303.

Bresnahan, Timothy F., Erik Brynjolfsson, and Lorin M. Hitt. 2002. “Information Technology, Workplace Organization, and the Demand for Skilled Labor: Firm-Level Evidence,” The Quarterly Journal of Economics, February, pp. 339-376.

Bryson, Alex, Rafael Gomez and Tobias Kretschmer (2005): ‘Catching a Wave: The Adoption of Voice and High-Commitment Work Practices in Britain, 1984 – 1998’, Working paper, Policy Studies Institute, January 2005.

Chi, Wei, Richard B. Freeman and Morris M. Kleiner. 2007. “Adoption and Termination of Employee Involvement Programs,” NBER working paper 12878.

Ichniowski, Casey and Kathryn Shaw. 2003. “Beyond Incentive Pay: Insiders’ Estimates of the Value of Complementary Human Resource Management Practices.” The Journal of Economic Perspectives, vol. 17(1), pp. 155-178.

Jones, Derek C. Panu Kalmi and Antti Kauhanen (2006): ‘Human Resource Management Policies and Productivity: New Evidence from an Econometric Case Study’, Oxford Review of Economic Policy 22(4): 526 – 38.

Jones, Derek C., Panu Kalmi, Takao Kato and Mikko Mäkinen (2008): ‘The Effects of Human Resource Management Practices on Firm Performance: Preliminary Evidence from Finland’, Discussion Paper 1121, The Research Institute for the Finnish Economy.

Jones, Derek C., Panu Kalmi and Mikko Mäkinen. 2006. “The Determinants of Stock Option Compensation: Evidence from Finland” Industrial Relations 45 (3): 437 – 468.

Jones, Derek C. and Takao Kato. 1993. "The Scope, Nature, and Effects of Employee Stock Ownership Plans in Japan." Industrial and Labor Relations Review 46 (January):352-67.

Kalmi, Panu and Antti Kauhanen (2008): ’Workplace Innovations and Employee Outcomes: Evidence from Finland’, Industrial Relations (forthcoming).

Kalmi, Panu, Andrew Pendleton and Erik Poutsma (2004): ‘The Relationship Between Financial Participation and Other Forms of Participation: New Survey Evidence from Europe’, Working Paper 3, Helsinki Center of Economic Research.

Kato, Takao. 2003. "The Recent Transformation of Participatory Employment Practices." In NBER Conference Report Labor Markets and Firm Benefit Policies in Japan and the United States, edited by S. Ogura, T. Tachibanaki and D. Wise, pp. 39-80. Chicago: University of Chicago Press.

Kato, Takao (2006): "Determinants of the Extent of Participatory Employment Practices: Evidence from Japan." Industrial Relations 45(4): 579-605.

Kato, Takao, Ju Ho Lee, Kang-Sung Lee and Jang-Soo Ryu (2005): 'Employee Participation and Involvement in Korea: Evidence from a New Survey and Field Research', International Economic Journal, 19 (2): 251-81.

Kato, Takao and Motohiro Morishima. 2002. "The Productivity Effects of Participatory Employment Practices: Evidence from New Japanese Panel Data." Industrial Relations *41* (October):487-520.

Kato, Takao and Hideo Owan (2007): 'Market Characteristics, Intra-Firm Coordination, and the Choice of Human Resource Management Systems: Evidence from New Japanese Data', IZA Discussion Paper 3105.

Kauhanen, Antti (2007): "The Determinants of Incidence of Workplace Innovations: Evidence from an Employee Survey." Manuscript. Helsinki School of Economics.

Lynch, Lisa (2007): 'The Adoption and Diffusion of Workplace Innovations: Evidence for the U.S. Economy', NBER Working Paper 13156.

Osterman, Paul. 1994. "How Common is Workplace Transformation and Who Adopts it?" Industrial and Labor Relations Review, January.

Poutsma, Erik, Panu Kalmi and Andrew Pendleton 2006: 'The Relationship Between Financial Participation and Other Forms of Participation: New Survey Evidence from Europe', Economic and Industrial Democracy 27(4): 637-67.

Sweins, Christina, Panu Kalmi and Kiisa Hulkko-Nyman (2008): 'Personnel Knowledge of the Pay System, Pay Satisfaction and Pay Effectiveness: Evidence from Finnish Personnel Funds', International Journal of Human Resource Management, forthcoming.

Appendix: Variable definitions

All variables measured in the end of 2005.

Dependent variables (components of employee involvement index)

Board representation: Employees have at least one representative in the company board; 1= yes; 0 = no.

Joint consultation committee: There is a joint consultation committee consisting of management and employee representatives at the level of the firm or establishment; 1= yes; 0= no.

Quality circles: The company uses quality circles, defined as regular meetings between employees where they discuss issues related to immediate job tasks and make suggestions to improve production processes.

Self-managed teams: The company has self-managed teams, defined as teams where employee select the team leader themselves, team members can decide on internal division of labor and at least to some extent on work methods; 1= yes; 0=no.

Job rotation: The company rotates employees between different job tasks; 1=yes; 0=no.

Suggestion schemes: The company uses schemes where employees can make suggestions to improve production process or work conditions; 1=yes; 0 = no.

Satisfaction surveys: The company regularly (at least once in three years) conducts satisfaction surveys among the employees; 1= yes; 0=no.

Total quality management: The company uses total quality management; 1= yes; 0=no.

Employee involvement index: Sum of the eight preceding components.

Independent variables:

Log of employment: Natural logarithm of the number of employees in the firm.

Union density: Percentage of the workforce in the firm belonging to a trade union.

Company-level performance pay: Manual employees are covered by a pay system where part of the pay is dependent on company or establishment level performance measures; 1= yes; 0= no.

Team-level performance pay: Manual employees are covered by a pay system where part of the pay is dependent on department or team level performance measures; 1= yes; 0= no.

Individual-level performance pay: Manual employees are covered by a pay system where part of the pay is dependent on individual-level performance measures; 1= yes; 0= no.

Financial participation: At least 50 % of the employees are covered by one of the following: personnel funds (a Finnish deferred profit-sharing plan covering all employees), broad-based stock options, or broad-based share ownership; 1= yes; 0=no.

Percentage trained: Percentage of workforce that have received workplace training during the past year.

IT use: Percentage of the workforce using computer daily at work.

ERP: The company uses an Enterprise Resource Planning software; 1=yes; 0=no.

Benchmarking: The company uses benchmarking, defined as a comparison of the firm to the best practices of a reference group;, 1=yes; 0=no.

Balanced Scorecard: The company uses Balanced Scorecard reporting; 1=yes; 0=no.

Formal recruitment criteria: The company uses written requirement criteria that recruited employees have to had a certain amount of eduction; 1=yes; 0=no.

ISO: The company uses a quality control system based on ISO9000- system; 1=yes; 0=no.

Development talks: The company has a practice of regular development talks between supervisors and employees; 1=yes, 0=no.

Percentage of HRM professionals: Percentage of HRM professionals to total workforce.

Competition very high: The respondent says competition in the main field of operations is very high; 1=yes; 0=no.

Foreign competition: The company faces a lot of competition from foreign competitors in the Finnish market; 1=yes; 0=no.

Price competition strategy: The main competitive advantage of the company are low prices; 1=yes; 0=no.

Profit margin: Percentage of net profit of sales.

Capital intensity: Natural logarithm of assets divided by the number of employees.

Firm age: Age of the firm in years; dummy variables for 1-9 years (reference category); 10-19 years; 20-29 years; over 30 years.

Foreign ownership: The largest owner of the company is a foreign company or person; 1=yes; 0=no.

Majority ownership: The largest owner of the company owns over 50 % of the shares; 1=yes; 0=no.

Reorganization: After 2000, the company has been subject to a transaction where the ownership has changed at least 15%.

E L I N K E I N O E L Ä M Ä N T U T K I M U S L A I T O S (ETLA)
THE RESEARCH INSTITUTE OF THE FINNISH ECONOMY
LÖNNROTINKATU 4 B, FIN-00120 HELSINKI

Puh./Tel. (09) 609 900 Telefax (09) 601753
Int. 358-9-609 900 Int. 358-9-601 753
http://www.etla.fi

KESKUSTELUAIHEITA - DISCUSSION PAPERS ISSN 0781-6847

Julkaisut ovat saatavissa elektronisessa muodossa internet-osoitteessa:
http://www.etla.fi/finnish/research/publications/searchengine

No 1100 SARIANNA M. LUNDAN, The Home Country Effects of Internationalisation. 21.08.2007. 43 p.

No 1101 TUOMO NIKULAINEN, Identifying Nanotechnological Linkages in the Finnish Economy. An Explorative Study. 25.09.2007. 31 p.

No 1102 HELI KOSKI, Do Technology Diffusion Theories Explain the OSS Business Model Adoption Patterns? 29.10.2007. 26 p.

No 1103 JUKKA JALAVA – PIRKKO AULIN-AHMAVAARA – AKU ALANEN, Intangible Capital in the Finnish Business Sector, 1975-2005. 29.10.2007. 25 p.

No 1104 BÖCKERMAN, Petri – JOHANSSON, Edvard – HELAKORPI, Satu – UUTELA, Antti, Economic Inequality and Health: Looking Beyond Aggregate Indicators. 05.11.2007. 21 p.

No 1105 MIKA MALIRANTA – RITA ASPLUND, Training and Hiring Strategies to Improve Firm Performance. 08.11.2007. 45 p.

No 1106 ESTEBAN FERNÁNDEZ VÁZQUEZ – BART LOS, A Maximum Entropy Approach to the Identification of Productive Technology Spillovers. 08.11.2007. 21 p.

No 1107 SAMI NAPARI, Is There a Motherhood Wage Penalty in The Finnish Private Sector? 20.11.2007. 46 p.

No 1108 ANTTI LÖNNQVIST, Intellectual Capital and Productivity: Identification and Measurement of the Relationship at Company-Level. 20.11.2007. 20 p.

No 1109 MIKA MALIRANTA – PETRI ROUVINEN, Aineettomat investoinnit Suomen yrityksissä vuonna 2004: kokeilu yritysaineistoilla. 20.11.2007. 16 s.

No 1110 ANNU KOTIRANTA – ANNE KOVALAINEN – PETRI ROUVINEN, Naisjohtoiset yritykset muita kannattavampia? 20.11.2007. 23 s.

No 1111 MIKA MALIRANTA – SATU NURMI – HANNA VIRTANEN, It Takes Three to Tango in Employment: Matching Vocational Education Organisations, Students and Companies in Labour Markets. 07.12.2007. 36 p.

No 1112 EDVARD JOHANSSON – PETRI BÖCKERMAN – ANTTI UUTELA, Alcohol Consumption and Sickness Absence: Evidence from Panel Data. 10.12.2007. 10 p.

No 1113 MIKA WIDGRÉN – KARI ALHO – MARKKU KOTILAINEN – NUUTTI NIKULA – VILLE KAITILA, Avautuva talous ja aluekehitys – suhteellinen etu ja kasautumisvoimat tuotannon sijoittumisen ohjaajina Suomessa. 12.12.2007. 79 s.

No 1114 MIKA MALIRANTA – SATU NURMI, Does Foreign Presence Stimulate Creative Destruction in Local Markets? 17.12.2007. 15 p.

No 1115 VILLE KAITILA – KARI E.O. ALHO – NUUTTI NIKULA, Growth Prospects of Emerging Market Economies in Europe – How Fast will They Catch up with the Old West? 31.12.2007. 46 p.

No 1116 MIKA MALIRANTA – PIERRE MOHNEN – PETRI ROUVINEN, Is Inter-firm Labor Mobility a Channel of Knowledge Spillovers? Evidence from a Linked Employer-Employee Panel.02.01.2008. 26 p.

No 1117 PIA NYKÄNEN, Sukupuolen vaikutus nuorten toimihenkilöiden urakehitykseen. 07.01.2008. 84 s.

No 1118 MIKA PAJARINEN – PETRI ROUVINEN, Verkostoitumisen yhteys yritysten kannattavuuteen ja kasvuun: Empiirisiä havaintoja. 14.01.2008. 14 s.

No 1119 JYRKI ALI-YRKKÖ – OLLI MARTIKAINEN, Ohjelmistoalan nykytila Suomessa. 21.01.2008. 19 s.

No 1120 SAMI NAPARI, Sukupuolten ammatillinen segregaatio Suomen yksityisellä sektorilla vuosina 1995-2004. 22.01.2008. 30 s.

No 1121 DEREK C. JONES – PANU KALMI – TAKAO KATO – MIKKO MÄKINEN, The Effects of Human Resource Management Practices on Firm Productivity – Preliminary Evidence from Finland. 28.01.2008. 29 p.

No 1122 KARI E.O. ALHO (Ed.), Tax/benefit Systems and Growth Potential of the EU. 31.01.2008. 89 p.

No 1123 VILLE KAITILA – ANNI NEVALAINEN – MIKA MALIRANTA – REIJO MANKINEN, Tuottavuuden mittaaminen – Suomi kansainvälisessä vertailussa. 27.02.2008. 39 s.

No 1124 KARI E.O. ALHO, Trade with the West and Russia – A Long-term Perspective on Finnish Economic Growth, Fluctuations and Policies. 22.02.2008. 28 p.

No 1125 OLAVI RANTALA, Sosiaalietuuksien rahoituksen alueelliset kuluttajahintavaikutukset. 03.03.2008. 25 s.

No 1126 PASI HUOVINEN – PETRI ROUVINEN, Does Mass Media Fuel, and Easy Credit Facilitate, Impulse Buys? 10.03.2008. 15 p.

No 1127

No 1128 KARI E.O. ALHO, Regulation of Energy Prices in Russia. 25.03.2008. 20 p.

No 1129 ARI HYYTINEN – PETRI ROUVINEN, The Labour Market Consequences of Self-Employment Spells: European Evidence. 25.03.2008. 25 p.

No 1130 RAINE HERMANS – MARTTI KULVIK – ANTTI-JUSSI TAHVANAINEN, Biotekniikan ennakointi. 26.03.2008. 23 s.

No 1131 DEREK C. JONES – PANU KALMI – TAKAO KATO – MIKKO MÄKINEN, The Incidence and Determinants of Employee Involvement – Evidence from the Finnish Manufacturing Sector. 28.03.2008. 24 p.

Elinkeinoelämän Tutkimuslaitoksen julkaisemat "Keskusteluaiheet" ovat raportteja alustavista tutkimustuloksista ja väliraportteja tekeillä olevista tutkimuksista. Tässä sarjassa julkaistuja monisteita on mahdollista ostaa Taloustieto Oy:stä kopiointi- ja toimituskuluja vastaavaan hintaan.

Papers in this series are reports on preliminary research results and on studies in progress. They are sold by Taloustieto Oy for a nominal fee covering copying and postage costs.